

**FURTHER NOTES ON THE AUSTRALIAN TROMBIDIIDAE  
WITH DESCRIPTION OF NEW SPECIES**

By HERBERT WOMERSLEY  
Entomologist, South Australian Museum

[Read 13 July 1939]

In the present paper a number of new species are described. In addition, however, the larvae of the genera *Chyzeria* and *Caenothrombium* are for the first time recorded and described.

The "itch mite" of the Coorong, South Australia, which has hitherto been regarded as the same species as that of Queensland, is now shown to be distinct and is described under the name of *Trombicula samboni* n. sp.

The considerable number of larval species described by Gunther (P. Linn. Soc. N.S.W., 64, 73-96, 1939) from New Guinea as *Neoschöngastia* is split up, the genus *Guntheria* being proposed for a unique form which also occurs in Queensland, and *Paraschöngastia* for four other species, the remainder being retained in *Neoschöngastia* s. str.

Four species and one variety of *Neoschöngastia* are described as new from Queensland. Keys to the Australian and New Guinea larval species of *Trombicula*, *Neoschöngastia* and *Schöngastia* are given.

My sincere thanks are tendered to Dr. E. H. Derrick and Mr. D. J. W. Smith, of the Laboratory of Microbiology, Brisbane, for the opportunity of examining their material; to Dr. C. E. Gunther, of New Guinea, and to other collectors mentioned, especially Mr. R. V. Southcott, who has been so successful in hatching the hitherto unknown larval forms of certain genera.

TROMBELLA Berlese, 1887

***Trombella adelaideae* n. sp.**

(Text fig. 1, A-D)

*Description*—General shape as in *T. warregense* Hirst. Length, 1.2 mm. Colour in life, white. Legs rather short, tarsus I rather parallel-sided 260  $\mu$  by 90  $\mu$ ; metatarsus 180  $\mu$ . Crista absent. Pseudostigmal hairs fine and on small well-separated tubercles. Eyes 2 + 2, small, lateral and in line with the pseudostigmal hairs. Dorsum with six pits in each lateral row, and four in the centre row; all the pits are round except the anterior median. Dorsal setae as in *T. warregense*, but hardly or only indistinctly ciliated; these setae extend all over the surface of the pits, and do not form a double ring only around the margin as in *warregense*.

*Locality*—A single specimen from under a stone at Burnside, South Australia, 17th August, 1938. (J. S. W.)

*Remarks*—Closely related to *T. warregense* Hirst but differs in the dimensions of the front tarsi, the shape of the median dorsal pits and the clothing.

## Genus MICROTROMBIDIUM Haller, 1882

## Subgenus DROMEOTHROMBIUM Berlese, 1912

## DROMEOTHROMBIUM MACROPODUS (Berl., 1903)

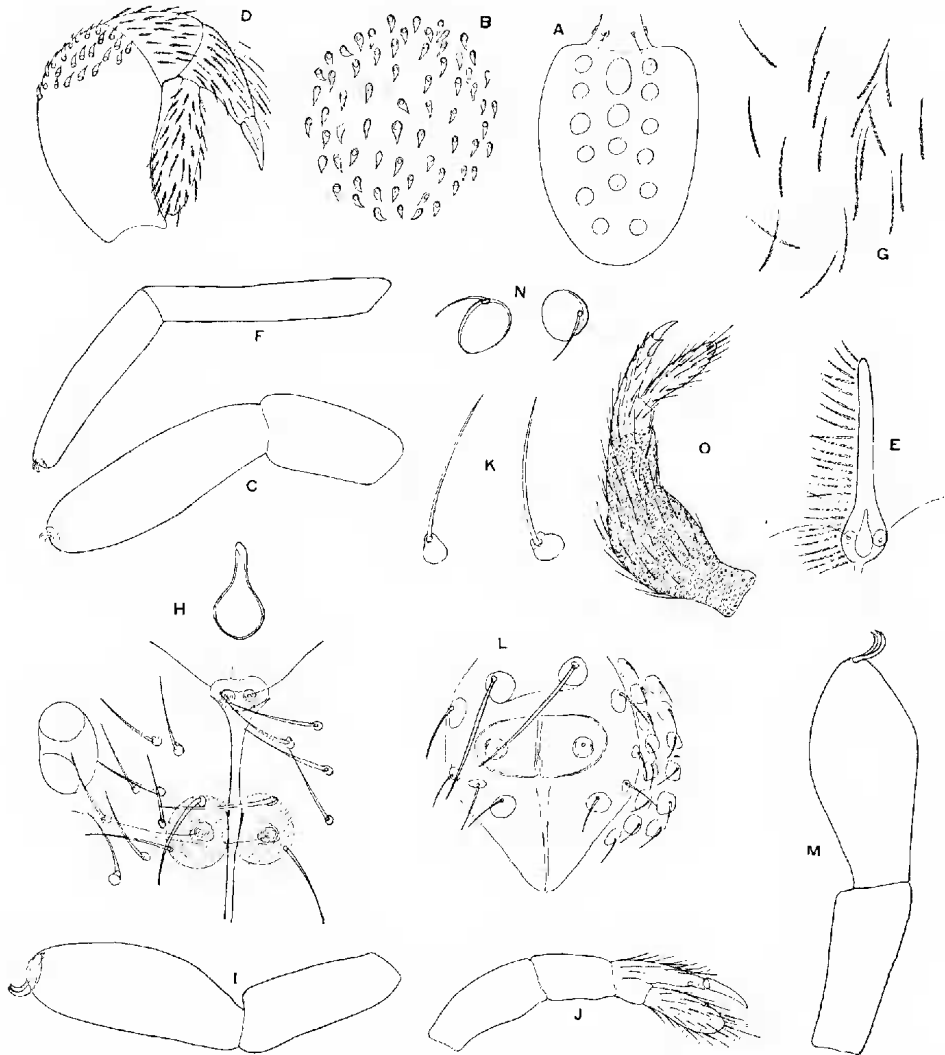
= *Trombidium macropodum* Berl., 1903. Redia 2, 155.*Microtrombidium (Dromeothrombium) macropodum* Berl., 1905, Redia 8, 132; Vitzthum, 1926, Treubia 8, 136.

Fig. 1 A-D—*Trombella adelaideae* n. sp.: A, dorsal view showing pits; B, arrangement of seta of a dorsal pit; C, front tarsus and metatarsus; D, palp. E-G—*Dromeothrombium dromus* n. sp.: E, crista; F, front tarsus and metatarsus; G, dorsal setae. H-K—*Johnstoniana vitzthumi* n. sp.: H, crista, nasus and left pair of eyes; I, front tarsus and metatarsus; J, palp; K, two dorsal setae; L-O—*Crossothrombium parkhousei* n. g., n. sp.: L, dorsal sensillary area; M, front tarsus and metatarsus; N, two of dorsal setae; O, palp.

Two specimens of this species, the type of the subgenus, have recently been collected by Dr. W. G. Heaslip in Queensland; one from Cairns, March, 1939, and one from Innisfail, December, 1939. Both specimens agree with the descriptions and figures given by Berlese and Vitzthum. The type specimen in the Hamburg Museum was from Buitenzorg, Java.

**Dromeothrombium dromus** n. sp.

(Text fig. 1, E-G)

*Description*—Colour creamy-white. Length to 2.4 mm., width to 1.3 mm. Legs I and IV much longer than body, I 3.32 mm., II 1.0 mm., III 1.8 mm., IV 2.7 mm.; tarsus I 600  $\mu$  long by 120  $\mu$  wide, parallel-sided, metatarsus 650  $\mu$  long; claws small. Crista as figured, 280  $\mu$  long with posterior sensillary area 78  $\mu$  wide furnished with a pair of fine sensillary hairs. Eyes absent. Palpi long, 460  $\mu$ , and slender, tibia with apical claw and accessory claw but no particularly strong outer dorsal spines; tarsus elongate and over-reaching tip of claw.

Dorsal setae as figured, mostly 40  $\mu$  long but with a sprinkling of longer ones of 80  $\mu$ . Body with fairly prominent shoulders.

*Locality*—Some half dozen specimens from under stones, associated with ants at Long Gully, South Australia, 18th August, 1938 (H. W.); another specimen from under stone, Murray Bridge, South Australia, 25th May, 1938 (R. V. S.).

*Remarks*—Close to *M. (D.) attolus* (Banks, 1916), but differs in size, dimensions of tarsus I and in the uniform shorter hairs (in *attolus* 1.2 mm., 310  $\mu$  by 69  $\mu$  and 21  $\mu$ , respectively).

JOHNSTONIANA George, 1909

= *Diplothrombium* Berl., 1910.

**Johnstoniana vitzthumi** n. sp.

(Text fig. 1, H-K)

*Description*—Length 2.0 mm. Colour reddish. Leg I and IV rather longer than body, I 2.0 mm., II 1.4 mm., III 1.5 mm., IV 2.7 mm.; tarsus I 400  $\mu$  by 150  $\mu$ , metatarsus 330  $\mu$ . Crista 250  $\mu$  long with two sensillary areas, one at anterior end, and one at one-third from posterior end; each furnished with two sensillary hairs, the posterior area consisting of two large circular areas one on each side of the mid-line, and besides the sensillary hairs carrying two strong setae. Eyes 2 + 2, on shields. In front of the crista is a strongly chitinised flask-shaped nasus; palpi slender, tibia with a strong claw with a smaller basal accessory claw, dorsally without any specially strong spines, tarsus slightly clavate, almost reaching tip of claw. Dorsal setae numerous, of long 50  $\mu$ , curved sharp setae arising from small tubercles.

*Locality*—A single specimen collected by Mr. Parkhouse at Second Valley, South Australia, during a visit by the Tate Society of the Adelaide University, December, 1938.

*Remarks*—This interesting species differs from the only other South Australian species of the genus, *J. australiense* (Hirst, 1928), in that the two sensillary areas of the crista are widely separated, the anterior being at the front end of the crista.

Genus **Crossothrombium** n. g.

Allied to *Johnstoniana* and probably more so to *Centrothrombium* Kramer in having only a single sensillary area and a single pair of sensillary setae. Crista practically absent. Eyes absent. Dorsal setae of the type of *Johnstoniana*, but arising from large pits or circles. Legs and palpi strongly chitinised and pitted. Tarsus of palp without terminal spines.

Genotype—*Crossothrombium parkhousei* n. sp.

**Crossothrombium parkhousei** n. sp.

(Text fig. 1, L-M)

*Description*—Length to 1.5 mm., width 1.0 mm. Colour in life reddish. Mouth parts and legs heavily chitinised. Legs rather short and stout, I 1.5 mm., II 1.2 mm., III 1.3 mm., IV 1.7 mm. Eyes absent. Palpi stoutish; tibia with strong apical claw and small basal accessory claw, and 2-3 strong dorsal spines, tarsus barely clavate and reaching tip of claw. Crista as figured with a single large transverse sensillary area and two sensillary hairs (lost in specimen), the whole on a cordate area with four pairs of setae, the anterior of which are long and strong. Tarsus I 380  $\mu$  by 180  $\mu$  as figured, metatarsus 300  $\mu$ . Cuticle strong and closely covered with large roundish pits, from each of which arises a fine curved seta as long as the diameter of pits. Legs, palpi and capitulum strongly and closely covered with small depressions, and very finely punctate.

*Locality*—A single specimen collected by Mr. Parkhouse, after whom it is named, at Second Valley, South Australia, during a visit by the Tate Society of the Adelaide University, December, 1938.

*Remarks*—The affinities of this interesting form have been discussed under the genus.

TROMBICULA Berlese, 1905

TROMBICULA MINOR Berlese, 1904

*Trombicula minor* Berl., 1904, Acari nuovi, manip. IV, 155.

„ *hirsti* Sambon, 1927, Ann. Mag. Nat. Hist., 20 (9), 157; nec.  
Hirst, 1929, Ann. Mag. Nat. Hist., 3 (10), 564; nec.  
Womersley, 1934, Rec. S. Aust. Mus., 5 (2), 212.

„ *hirsti* v. *buloloensis* Gunther, 1939. Proc. Linn. Soc. N.S.W.,  
64, 78.

Gunther, by breeding the nymphal form from the larvae, has recently established<sup>(1)</sup> the identity of his *hirsti* v. *buloloensis* with *T. minor* described from Java

<sup>(1)</sup> Dr. Gunther has kindly allowed the nymphs to be deposited in the South Australian Museum. His paper on the nymphal stage appeared in the Trans. Linn. Soc. N.S.W., published 15th Dec., 1939.

by Berlese. I have now received from Dr. W. G. Heaslip an adult female found at Innisfail in Queensland (December, 1939), which also corresponds to Berlese's species. As the only larval *Trombicula* known from Queensland is *T. hirsti* Sambon (the common itch-mite of that State), the above correlation is further confirmed.

The differences between typical *T. hirsti* and *T. hirsti* v. *buloloensis*, which are only those of hair lengths and size of scutum, would seem therefore to be of no value.

***Trombicula samboni* n. sp.**

= *T. hirsti* Hirst, 1929, nec Sambon, 1927; Womersley, 1934, nec Sambon, 1927.  
(Text fig. 2, A-H)

Although it has for long been suspected that the "itch-mite" of South Australia might not be identical with the form described by Sambon from Queensland, it has only recently been possible to compare our local form with the type of *T. hirsti* from Queensland. Through the generosity of Mr. F. H. Taylor, of the School of Tropical Health, Sydney, I have been afforded the opportunity of examining a type slide of Sambon's species, and can now definitely state that the South Australian form is distinct, and take this opportunity of describing it as new.

*Description*—Length 260  $\mu$  by 156  $\mu$ . Dorsal scutum 91  $\mu$  at widest between postero-lateral hairs, length 65  $\mu$ , posterior margin evenly rounded, anterior margin slightly concave; anterior median and lateral hairs 39  $\mu$ , posterior lateral hairs 47  $\mu$ , sensory hairs placed slightly in advance of postero-lateral hairs, 65  $\mu$  long, sparsely ciliated on distal two-thirds; scutal surface finely pitted. Eyes 2 + 2, small and distinctly separated from scutum. Palpi and mandibles as figured. Leg I with outer stout simple spine at one-third from base. Dorsal setae long and ciliated as figured, 39  $\mu$ , arranged 2, 6, 6, 6, 4, 2.

*Remarks*—Differs from *T. hirsti* Sambon in the form of the dorsal scutum and the arrangement of setae on dorsum.

*Locality*—Common in the ti-tree scrub along the Coorong, South Australia.

KEY TO THE AUSTRALIAN AND NEW GUINEA SPECIES OF TROMBICULA

- |  |   |
|--|---|
| 1. Dorsal setae more than 50.  | 2                                       |
| Dorsal setae 42 or fewer.  | 3                                       |
| 2. Dorsal setae arranged 2, 14, 12, 4, 6, 8, 10, 8, 4, the posterior rows close set and their individual setae thicker and more strongly ciliated than the others. Dorsal scutum with the posterior margin convex laterally and concave medially; AW 118 $\mu$ , PW 120 $\mu$ , L 69 $\mu$ . |   |
|  | <i>T. rioi</i> Gunther, 1939.           |
| Dorsal setae 2, 6, 8, and then about 5 rows of 8 closely placed setae ciliated similarly to the others. Dorsal scutum with posterior margin evenly convex, AW 80 $\mu$ , PW 86 $\mu$ , L 51 $\mu$ .  |   |
|  | <i>T. macropus</i> Wom., 1936.          |
| 3. Dorsal setae 42, arranged 2, 6, 6, 6, 6, 6, 6, 4, 60-75 $\mu$ long. Dorsal scutum with posterior margin evenly convex, AW 70 $\mu$ , PW 70 $\mu$ , L 101 $\mu$ .  |   |
|  | <i>T. novae-hollandiae</i> Hirst, 1929. |
| Dorsal setae less than 42.   | 4                                       |

4. Posterior margin of scutum convex laterally, strongly concave medially. Dorsal setae arranged 2, 6, 6, 6 (2), 2 (6), 2. *T. wichmanni* Oudemans, 1905.

5. Dorsal setae 2, 6, 6, 6, 4, 2, 2; 44  $\mu$  long. Dorsal scutum trapezoidal, AW 86  $\mu$ ; PW 94  $\mu$ , L 66  $\mu$ ; ratio PW/L 1.42. ***T. samboni* n. sp.**

Dorsal setae 2, 6, 6, 2, 2, 2; 40  $\mu$  long. Dorsal scutum AW 76  $\mu$ , PW 94  $\mu$ , L 56  $\mu$ , PW/L 1.66.

*T. minor* Berlese, 1904.  
= *T. hirsti* Sambon, 1927.

Dorsal setae 2, 6, 6, 4, 2; 56  $\mu$  long. Dorsal scutum AW 90  $\mu$ , PW 110  $\mu$ , L 66  $\mu$ , PW/L 1.68.

*T. minor* Berlese, 1904.  
= *T. hirsti* v. *buloloensis* Gunther, 1939.

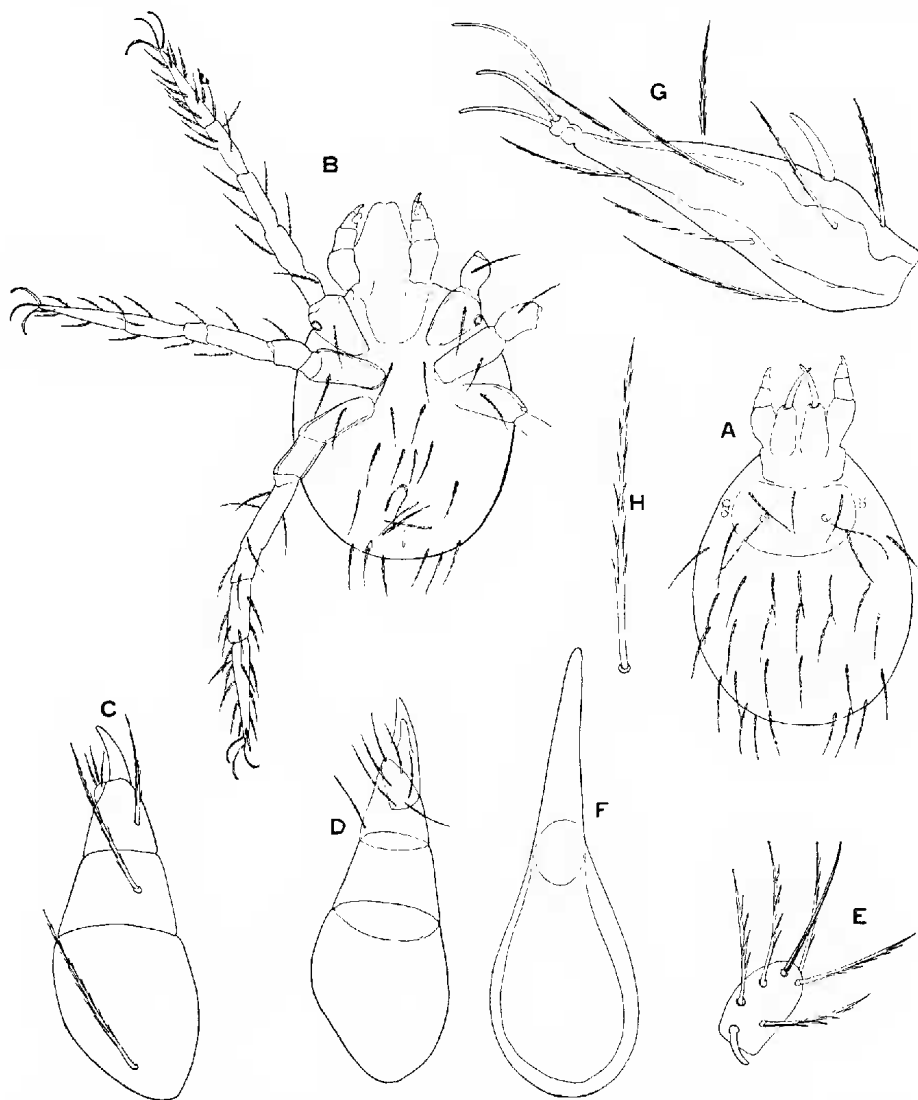


Fig. 2 *Trombicula samboni* n. sp.: A, dorsum; B, venter; C, palp from above; D, palp from below; E, tarsus of palp; F, mandible; G, tarsus I; H, tarsal seta.

## CHYZERIA Canestrini, 1897

## CHYZERIA AUSTRALIENSE Hirst, 1928

(Text fig. 3, A-E)

*Description of Larva*—Oval, length  $234\ \mu$ , width  $143\ \mu$ , as figured. Dorsum with one large anterior scutum and then five rows of round or oval scuta, arranged 6, 6, 6, 4, 2, each of which carries a single ciliated seta  $44\ \mu$  long; the

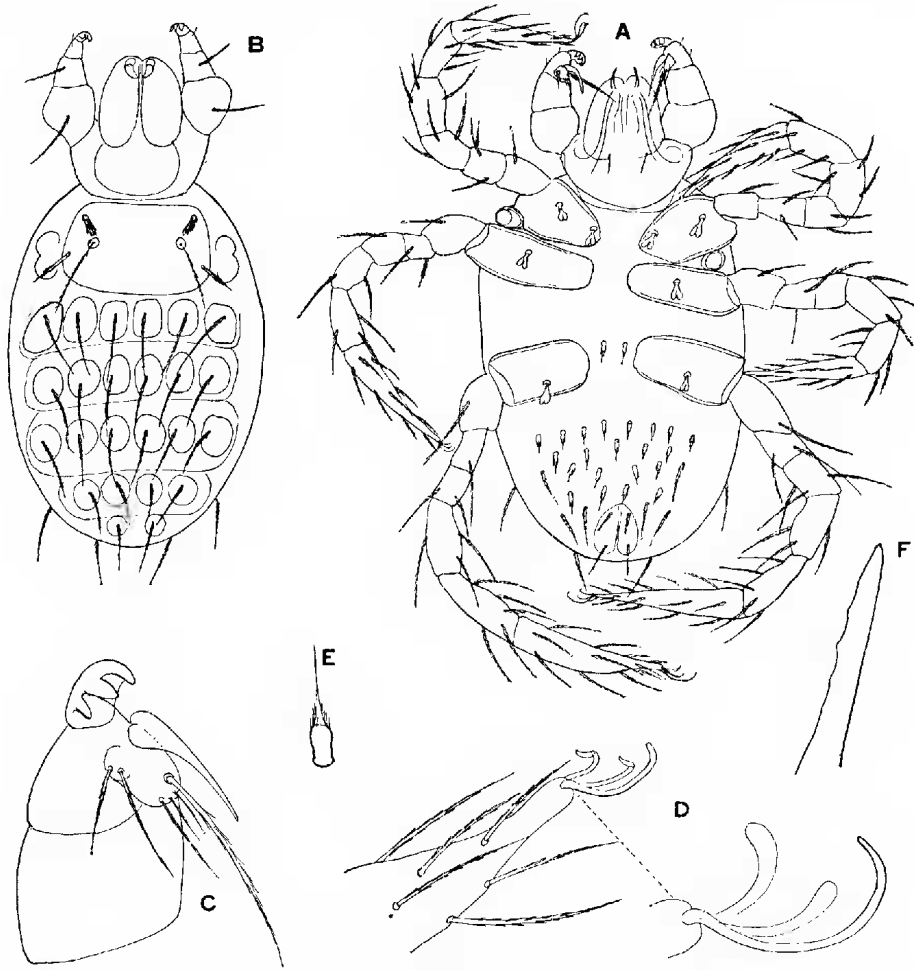


Fig. 3 *Chyzeria australiense* Hirst (larva): A, ventral view; B, dorsal view; C, palp; D, tip of tarsus and claws; E, ventral seta; F, tip of mandible.

anterior scutum is somewhat trapezoidal,  $\Delta W\ 79\ \mu$ ,  $PW\ 125\ \mu$ ,  $L\ 52\ \mu$ , and carries two pairs of setae besides the pseudostigmal setae; the anterior pair are short and stout and serrate as figured,  $26\ \mu$  long, the posterior pair are thinner and more pointed and  $34\ \mu$  long; the sensillary setae are fine and thread-like with fine ciliations and  $44\ \mu$  long. Eyes large and two on each side close to lateral margins of anterior scutum. Palpi and mouth parts as figured; mandibles as figured, inner edge of chelae serrated.

Legs—long and stout, I 273  $\mu$  long, II 286  $\mu$ , III 312  $\mu$ ; tarsus I 78  $\mu$  by 28  $\mu$ . Claws three, the lateral ones clavate as figured and shorter than the finer medial one; coxae I with 2, II and III with 1 bifurcate short stout seta.

Ventrally between coxae III is a pair of short stout setae, 13  $\mu$  long, with short lateral and longer apical ciliations as figured; beyond coxae III are four rows of similar setae arranged 8, 5, 4, 4, and then 2, 6, 2, longer ciliated normal setae 20  $\mu$  long. Anus is placed near apex.

*Locality and Remarks*—I am indebted to Mr. R. V. Southcott for this larval material. He collected two adults of the species at Glen Osmond, South Australia, on 23rd May, 1938. These he placed in a tube with a little sterile soil and although at no time was he able to observe any eggs, a number of the larvae described above appeared on 9th September, 1938. There seems to be little doubt that they can be the larvae of anything but the species to which they are here correlated.

CAENOTHROMBIVM Oudemans, 1928

CAENOTHROMBIVM MINIATUM Wom., 1934

(Text fig. 4, A-F)

*Description of Larva*—Length to 250  $\mu$ , width 117  $\mu$ ; body constricted about on level with coxae III as figured. Dorsum with two scuta, the anterior one large,

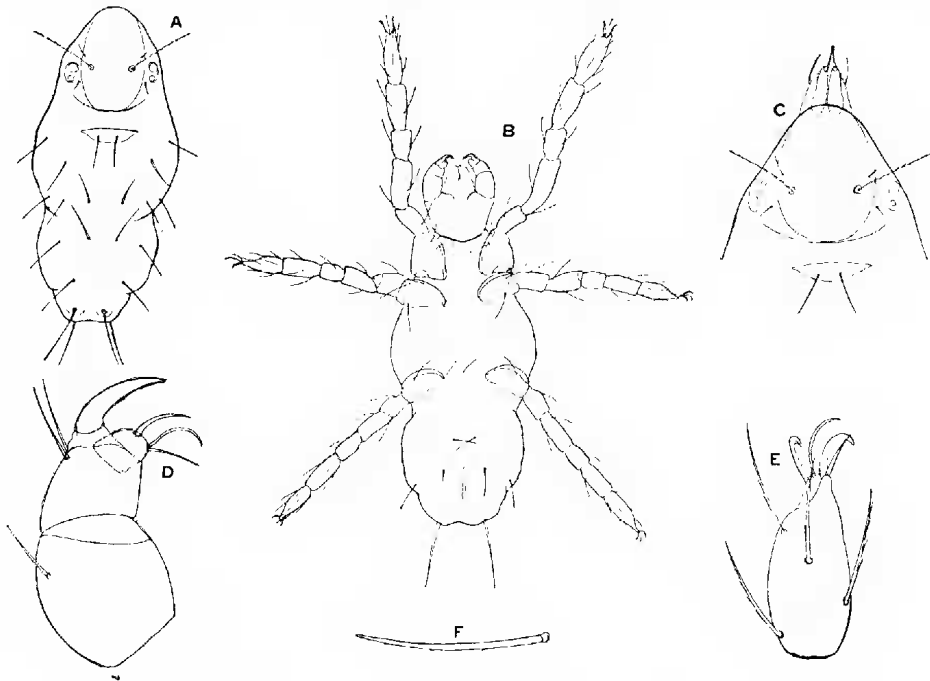


Fig. 4 *Caenothrombium miniatum* Womersley (larva): A, dorsal view; B, ventral view; C, dorsal scuta; D, palp; E, front tarsus; F, tarsal seta.



longer than wide,  $78\ \mu$  by  $52\ \mu$ , furnished with a pair of long fine ciliated pseudo-stigmal hairs  $40\ \mu$  long, the sensillary pits being slightly behind the middle of scutum; just in front of the sensillary hairs is a pair of short fine normal setae  $15\ \mu$  long. The median scutum is  $35\ \mu$  wide and  $15\ \mu$  long, with the anterior margin almost straight, the posterior bow-shaped; it carries a single pair of fine setae about  $26\text{-}30\ \mu$  long. Just outside the anterior dorsal scutum, posterior to the sensillary hairs, and between the scutal margin and the eyes is another pair of setae, of the same length. Eyes  $2 + 2$ , on distinct shields. The dorsum is furnished with 18 long strong fine setae, arranged 2, 2, 6, 4, 2, 2, the posterior pair are  $65\ \mu$  long, the others  $45\ \mu$  long.

Legs—I  $208\ \mu$ , tarsus  $40\ \mu$  by  $21\ \mu$ , apparently without any simple stout spine or seta; II  $182\ \mu$ , III  $182\ \mu$ ; claws strong and simple, empodium strong, claw-like. Coxae I and II adjacent, III separated, I and II with two setae, III with one. Between coxae III a single pair of setae; posteriorly, in front of anus, is a pair of setae, and on each side two setae, all these are  $26\ \mu$  long; posterior of anus and terminal is a pair of long setae of  $65\ \mu$ ; the body setae are all simple or only indistinctly serrated. The mandibles are simple. The palpi are as figured, the tibia apically having a long strong claw, the tarsus with apparently only three simple setae.

*Locality and Remarks*—An adult of this species was collected by Mr. R. V. Southcott on 11th September, 1938, and placed in a tube of sterile soil, as described for *Chyzeria australiense*. Eggs were observed on 1st October, 1938, and the first larva hatched on 5th November, the remainder continuing to do so until the 20th of the same month.

#### **Guntheria** n. gen.

Body form elongate oval with a distinct medial constriction. Posteriorly with an area divided longitudinally into two small oval plates each carrying three fine anterior hairs. Coxae each with a single seta. Dorsal scutum without a definite crest, uniformly pitted. Pseudostigmal hairs clavate.

Genotype—*Neoschöngastia kallipygos* Gunther, 1939.

#### GUNTHERIA KALLIPYGOS Gunther, 1939

(Text fig. 5, A-E)

This interesting species has been very fully described by Gunther from New Guinea, and I have received specimens from Queensland collected by Mr. J. D. Smith as follows:

Slide B from Bandicoot. Slide 6 from *Rattus youngi*, No. 6, Cowan Cowan, 4th Sept., 1938. Slide 8 from *Rattus youngi*, No. 8, Cowan Cowan, 8th Sept., 1938. Slide 20 from Bandicoot, No. 70, Cowan Cowan, 6th Sept., 1938.

Gunther's material was from the following hosts: *Rattus ringens*, *R. browni*, *Melomys moncktoni*, *M. stalkeri*, *M. rubex*, *M. sp.*, *Echymipera cockerelli*, and *Peroryctes raffrayana*.



Fig. 5 *Guntheria kallipygos* Gunther: A, dorsal view; B, ventral view; C, dorsal scutum; D, gnathosoma from below; E, front tarsus.

Genus NEOSCHÖNGASTIA Ewing, 1929

In this paper it is proposed to include here only those forms in which the dorsal scutum is evenly pitted, without a prominent ridge and striations, and in which the body is not constricted medially, in addition to the characters by which Ewing separates this genus from *Schöngastia*, viz., chelicerae with not more than a single dorsal hook and trifurcate (not bifurcate) palpal claw.

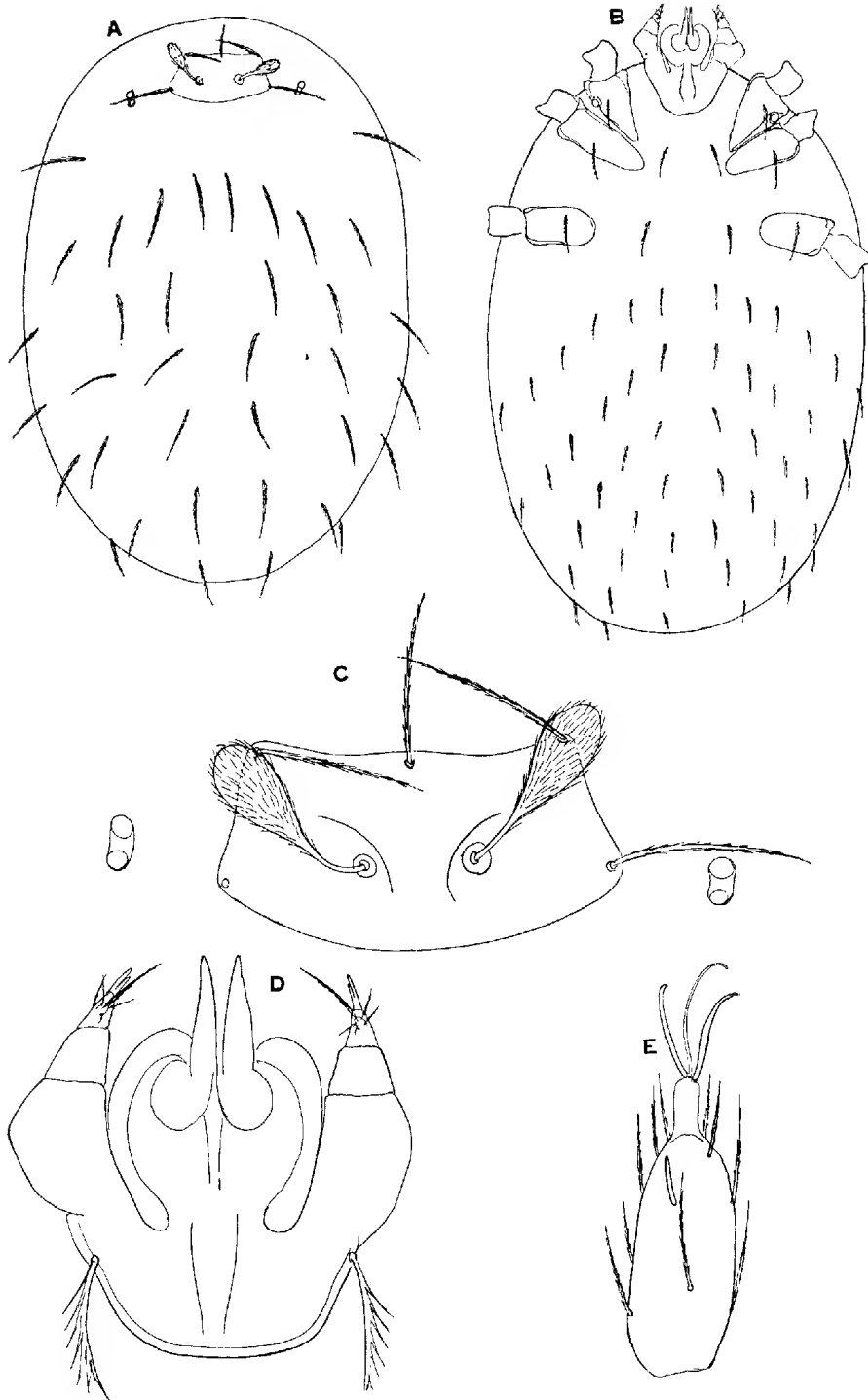


Fig. 6 *Neoschöngastia westraliense* v. **trichosuri** v.n.: A, dorsal view; B, ventral view; C, dorsal scutum; D, gnathosoma from below; E, front tarsus.

## NEOSCHÖNGASTIA WESTRALIENSE Hirst

var. *trichosuri* var. nov.

(Text fig. 6, A-E)

*Description*—Differs from the typical form as given in the key, in the smaller dimensions of the dorsal scutum and in the shorter dorsal setae.

*Locality*—Nambour, Queensland, 5th July, 1938, on *Trichosurus vulpecula*.

**Neoschongastia perameles**<sup>(2)</sup> sp. nov.

(Text fig. 7, A-E)

*Description*—Length 550  $\mu$ , width 345  $\mu$  as figured. Dorsal scutum as figured with the greatest width, 73  $\mu$ , at half the length and in the line of the posterior

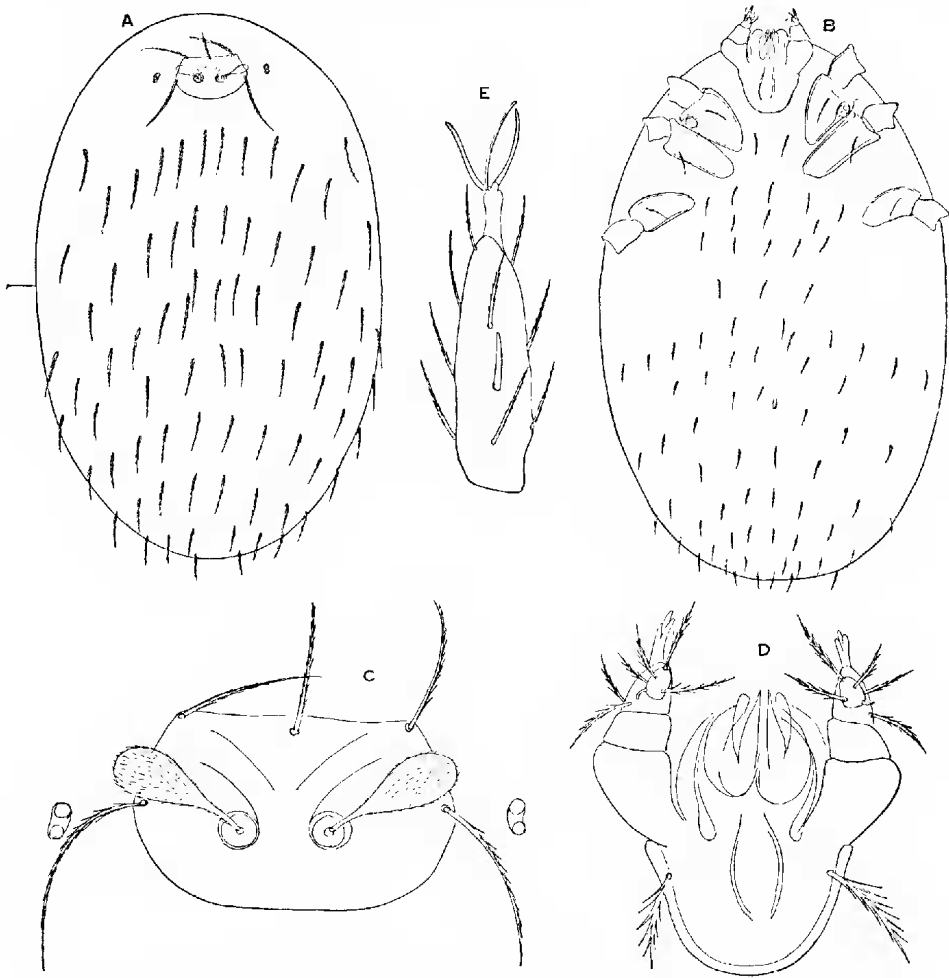


Fig. 7 *Neoschongastia perameles* n.sp.: A, dorsal view; B, ventral view; C, dorsal scutum; D, gnathosoma from below; E, front tarsus.

<sup>(2)</sup> Owing to the prior publications of the name *isoodon* (mihi, in litt.) by Derrick in the M.J.A. for 28th Jan., 1939, contrary to Art. 25 of the International Rules of Nomenclature, this name becomes a "nomen nudum" and is, therefore, herewith changed to *perameles*.

lateral hairs; anterior width  $52\ \mu$ ; length  $47\ \mu$ ; posterior margin from the posterior lateral hairs deeply and evenly convex; AM seta  $26\ \mu$ , AL  $20\ \mu$ , PL  $42\ \mu$ ; pseudo-stigmal hairs clavate as figured,  $39\ \mu$  long with ciliations; scutal surface evenly pitted. Eyes two on each side on distinct plates. Palpi normal with trifurcate

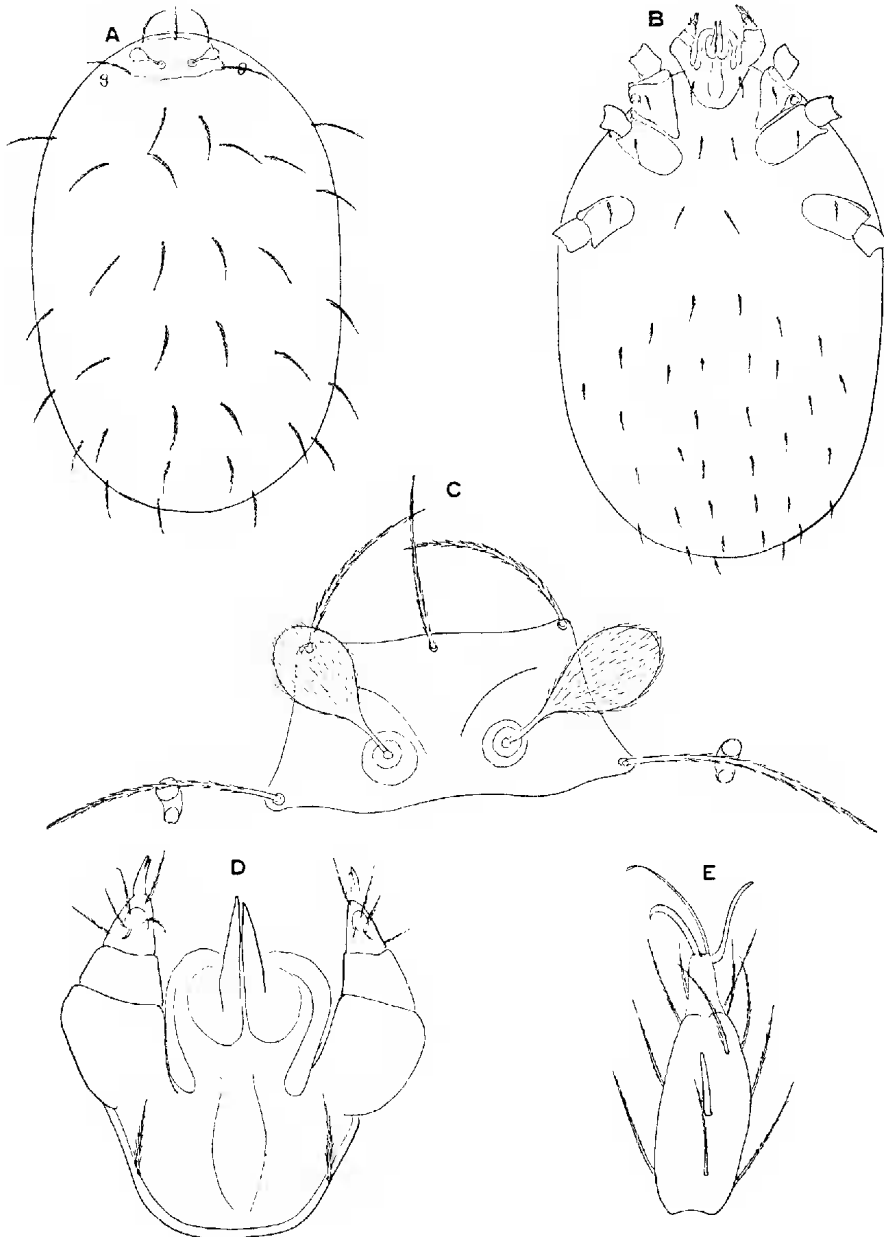


Fig. 8 *Neoschongastia queenslandica* n. sp.: A, dorsal view, B, ventral view; C, dorsal scutum; D, gnathosoma from below; E, front tarsus.

tibial claw. Mandibles normal. Legs—I 260  $\mu$  long, II 225  $\mu$ , III 225  $\mu$ ; tarsus I 65  $\mu$  by 20  $\mu$ , with the usual stout simple spine. Claws normal.

Dorsal setae 32  $\mu$  long, arranged 2, 12, 12, 12 (14), 10, 10, 8, 6, 2. Ventral setae 26  $\mu$  long, arranged as figured; all coxae with only one seta.

*Locality and Hosts:* From Bandicoots—No. 48 (slide 16) 9th June, 1938, No. 99 (17) 23rd June 1938, No. 56 (18) 21st June 1938, No. 63 (19) 10th August 1938, from Kiamba, Queensland; No. 42 (15) 27th May 1938, No. 71 (21) 10th September 1938, from Nambour, Queensland; Slide A from Brisbane, 1938, all collected by Mr. D. J. W. Smith.

*Remarks*—The relationships of this species are best given in the following key.

**Neoschongastia queenslandica** n. sp.

(Text fig. 8, A-E)

*Description*—Length 400  $\mu$ , width 260  $\mu$  as figured. Dorsal scutum as in figure 8 A and C, with greatest width 70  $\mu$ , in line of posterior lateral hairs; anterior width 49  $\mu$ , length 26  $\mu$ ; anterior margin doubly sinuate, posterior margin doubly sinuate as figured; pseudostigmal hairs broadly clavate, 26  $\mu$  long, with ciliations; AM seta 26  $\mu$  long, AL 26  $\mu$ , PL 39  $\mu$ . Palpi as figured. Mandibles normal. Eyes two on each side, on distinct plates.

Legs—I 172  $\mu$  long, II 160  $\mu$ , III 180  $\mu$ ; tarsus I 39  $\mu$  by 21  $\mu$ , as figured; all coxae with only one seta. Dorsal setae 39  $\mu$  long, arranged 2, 6, 6, 6, 6, 4, 2; ventral setae 21  $\mu$  long, arranged as shown.

*Localities and Hosts*—On *Rattus assimilis* from Imbil, Queensland, 2nd July, 6th and 12th August, 1938; on *Rattus youngi* from Cowan Cowan, 4th September, 1938; on *Mecomys cervenipes* from Imbil, 19th August, 1938; on *Rattus lutreolus* from Imbil, 1st July and 4th August, 1938 (D. J. W. S.).

**Neoschongastia derricki** n. sp.

(Text fig. 9, A-E)

*Description*—Length 430  $\mu$ , width 360  $\mu$ , as figured. Dorsal scutum as in figure 9 A and C with greatest width 91  $\mu$  in line with postero-lateral hairs and slightly in front of midway of length of scutum; anterior width 65  $\mu$ ; anterior margin slightly sinuate, posterior margin deeply concave and evenly curved from postero-lateral hairs; length of scutum 39  $\mu$ ; pseudostigmal hairs elongate clavate, 39  $\mu$  long. Antero-median hair 39  $\mu$ , antero-lateral 26  $\mu$ , postero-lateral hairs 78  $\mu$ . Palpi as figured, tibial claw bi- or possibly trifurcate. Mandibles normal.

Legs—I 224  $\mu$ , II 250  $\mu$ , III 260  $\mu$ ; tarsus I as figured with strong stout simple spine.

Dorsal setae 78  $\mu$  long, arranged 6, 4, 6, 4, 2, with usual short ciliations. Ventral setae: all coxae with only 1, these and the pair between coxae I and those towards apex 39  $\mu$  long, remainder 26  $\mu$ , arranged as shown.

*Locality and Hosts*—On *Rattus lutreolus* 7, Imbil, Queensland, 4th August, 1938; on *R. assimilis* 7, Imbil, 12th August, 1938 (D. J. W. S.).

*Remarks*—In the characteristic dorsal setae and their arrangement this species is easily distinguished by the key.

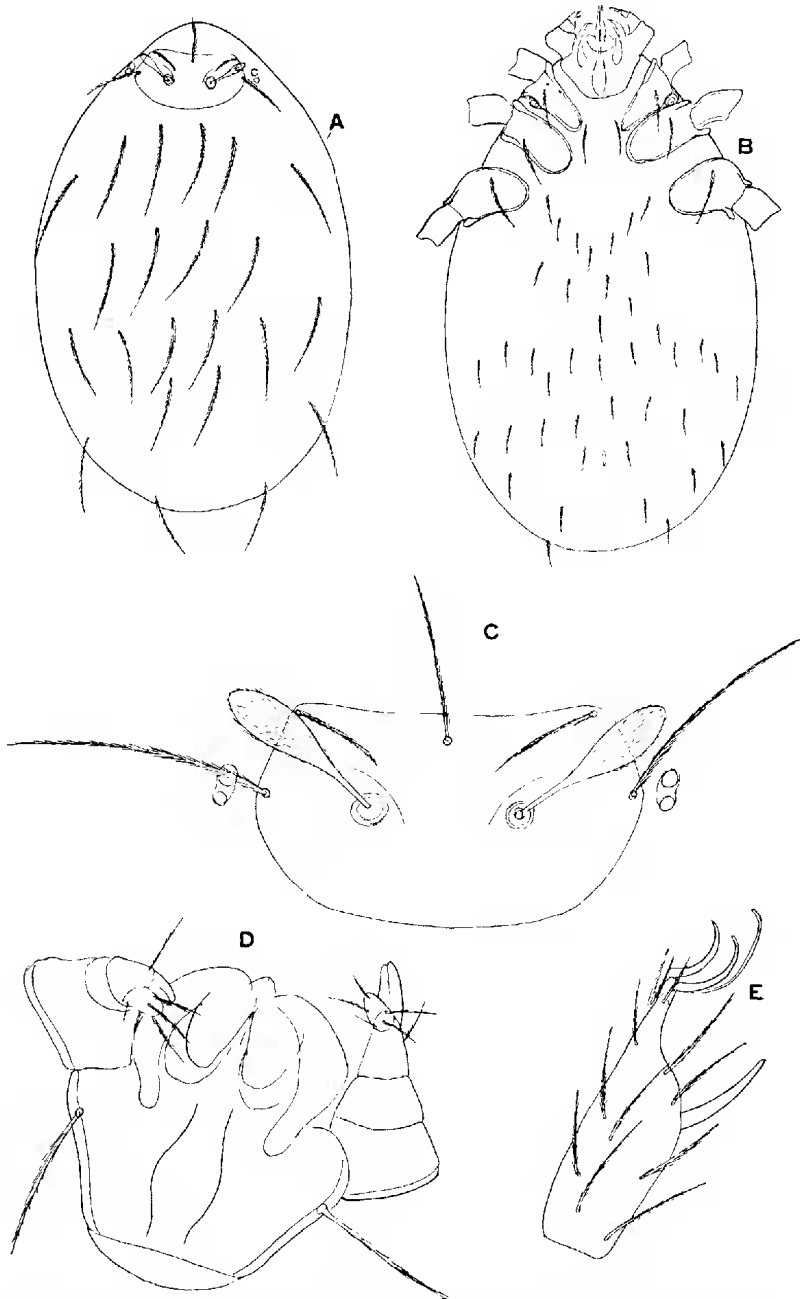


Fig. 9 *Neoschongastia derricki* n. sp.: A, dorsal view; B, ventral view; C, dorsal scutum; D, gnathosoma from below; E, front tarsus.

**Neoschongastia smithi** n. sp.

(Text fig. 10, A-E)

*Description*—Length  $400\ \mu$ , width  $260\ \mu$  as figured. Dorsal scutum as figured, with greatest width in line of postero-lateral hairs,  $78\ \mu$ ; anterior width  $70\ \mu$ ; anterior margin practically straight, posterior margin evenly curved laterally, and convex in median third; antero-median hair  $52\ \mu$ , antero-lateral  $26\ \mu$ , postero-lateral  $65\ \mu$ ; pseudostigmal hairs  $60\ \mu$  long, elongate clavate. Eyes  $8 + 2$ , on distinct shield and only slightly distant from the scutum. Palpi as figured, mandibles normal.

Legs—I  $260\ \mu$  long, II  $224\ \mu$ , III  $260\ \mu$ ; tarsus I  $57\ \mu$  by  $18\ \mu$  as figured. Claws normal.

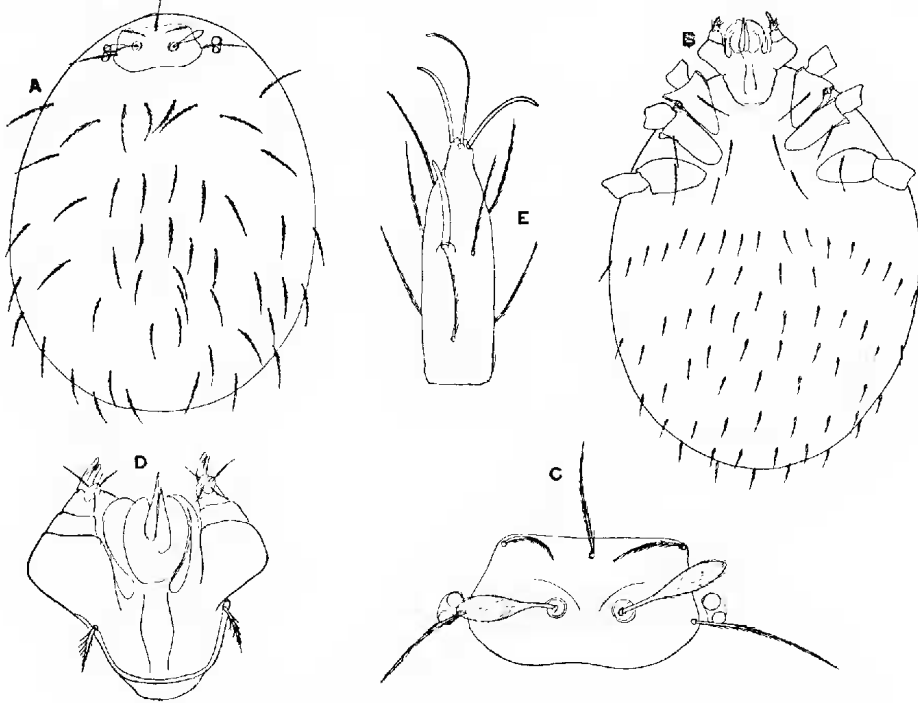


Fig. 10 **Neoschongastia smithi** n. sp.: A, dorsal view; B, ventral view; C, dorsal scutum; D, gnathosoma from below; E, front tarsus.

Dorsal setae  $52\ \mu$  long, arranged 2, 8, 8 (10), 8 (10), 6 (8), 4, 4, 2; ventral  $20\ \mu$  as figured. All coxae with only one seta.

*Locality*—On *Rattus assimilis* (7) from Imbil, Queensland, 12th August, 1938 (D. J. W. S.).

KEY TO THE AUSTRALIAN AND NEW GUINEA SPECIES OF NEOSCHÖNGASTIA

- |  |   |
|--|---|
| 1. Pseudostigmal hairs more or less globular.  | 2 |
| Pseudostigmal hairs clavate.   | 6 |
| 2. Posterior margin of scutum convex or produced backwards, so that the postero-lateral hairs are much in advance of the mid-point of the margin.  | 3 |
| Posterior margin of scutum almost straight or somewhat sinuate medially; postero-lateral hairs hardly if at all in advance of mid-point of margin. | 5 |



3. Dorsal scutum roughly hexagonal, the posterior margin forming strong angles with lateral margins, the outer thirds at about 45° with middle third which is straight and slightly sinuated. Pseudostigmal hairs in a transverse line with postero-lateral hairs. Dorsal setae 64, arranged 2, 14, 14, 10, 12, 8, 4; 26  $\mu$  long.  
*N. edwardsi* Gunther, 1939
- Dorsal scutum more trapezoidal, not forming acute lateral angles. 4
4. Posterior margin of dorsal scutum laterally rounded and medially concave. Dorsal body hairs 32, arranged 2, 6, 6, 6, 6, 4, 2; 50  $\mu$  long. *N. coorongense* Hirst, 1929
- Posterior margin straighter, slightly sinuate medially, posterior corners broadly rounded. Dorsal body hairs about 100, 35  $\mu$  long and much more ciliated, arranged in about 10 rows of 10-12 hairs.  
*N. petrogale* Wom., 1934
5. Anterior margin of dorsal scutum not more than two-thirds length of posterior margin. Dorsal body hairs 39  $\mu$ , arranged 2, 6, 6, 6, 6, 4 (2), 2. Posterior margin of dorsal scutum 70  $\mu$  long.  
**N. queenslandica** n. sp.
- Anterior margin of dorsal scutum four-fifths length of posterior margin. Dorsal body hairs 50, 36  $\mu$ , long, arranged 6, 8, 8, 8, 8, 6, 4, 2. Posterior margin of dorsal scutum 70  $\mu$  long.  
*N. antipodianum* Hirst, 1929
6. Dorsal scutum three-fourths as long as wide. 7  
Dorsal scutum three-fifths or less as long as wide. 8
7. Posterior margin of dorsal scutum evenly convex. Bases of pseudostigmal hairs in line with postero-lateral hairs. Dorsal body hairs 40  $\mu$  long, arranged 2, 8, 6, 6, 6, 2, 2.  
*N. dasyceci* Hirst, 1929
- Posterior margin of dorsal scutum rather flattened or feebly sinuate in middle third. Bases of pseudostigmal hairs much in advance of postero-lateral hairs. Dorsal body hairs 26  $\mu$  long, arranged 2, 6, 6 (2), 6, 4, 2 (2).  
*N. impar* Gunther, 1939
8. Dorsal scutum three-fifths as long as wide, posterior margin slightly convex on lateral thirds, strongly concave on middle third. Bases of pseudostigmal hairs much in advance of postero-lateral hairs and nearer the antero-lateral hairs than to the postero-laterals. Dorsal body setae 30  $\mu$  long, arranged 2, 6, 6, 4, 2 (4), 2.  
*N. lorius* Gunther, 1939
- Dorsal scutum not more than half as long as wide. 9
9. Posterior margin of dorsal scutum concave medially, anterior margin concave. Dorsal body setae 51-79  $\mu$  long, arranged 2, 8, 6, 6, 6 (4), 4 (6), 2. 10  
Posterior margin of dorsal scutum not noticeably concave medially. 11
10. Width between postero-lateral hairs of dorsal scutum 106  $\mu$ . Dorsal body hairs 79  $\mu$  long.  
*N. westraliense* Wom., 1934
- Width between postero-lateral hairs of dorsal scutum 79  $\mu$ . Dorsal body hairs 51  $\mu$  long.  
*N. westraliense* v. **trichosuri** n. v.
11. Dorsal scute angular laterally on a level of the postero-lateral hairs. Pseudostigmal hairs in line with the postero-lateral hairs, distance between latter 89  $\mu$ . Dorsal body hairs 70  $\mu$  long, arranged 6, 6, 6, 4, 2.  
**N. derricki** n. sp.
- Sides of dorsal scutum straight or nearly so, not angled. 12
12. Dorsal body hairs about 50, arranged 2, 8, 8, 8, 8, ?, 52  $\mu$  long. **N. smithi** n. sp.
- Dorsal body hairs about 80 in all, 34  $\mu$  long, arranged 2, 12, 12, 12, 12, ?.  
**N. perameles** n. sp.

### Genus *Paraschongastia* gen nov.

This new genus is erected for the four New Guinea species described by Gunther as belonging to *Neoschöngastia*, but then recognised as forming at least a well-defined group.

The anterior dorsal scutum differs from that of species of *Neoschöngastia* in that there is a distinct raised crest in front of the pseudostigmata. This crest forms a very distinct wall in which the bases of the sensillary hairs are situated. The posterior half of the scutum on each half has circular striations but the anterior half is pitted. Coxae III with 1, 2 or 3 ciliated hairs along anterior margin.

The four species so far known can be separated by the following key:

KEY TO THE AUSTRALIAN AND NEW GUINEA SPECIES OF *Paraschöngastia* gen. nov.

1. Coxae III with three ciliated hairs along anterior margin. No pitted area posteriorly on dorsum. Dorsal setae 2, 14, 10, 12, 6, 14, 14, 12, 8, 4. Scutal crest indefinite medially. *P. dubia* Gunther, 1939

Coxae III with only one or two ciliated setae on anterior margin. 2

2. Coxae III with two ciliated setae on anterior margin. Posterior pitted area of dorsum relatively small with a number of slightly oval discs each bearing a single fine hair; along anterior margin of this area a row of tubercles devoid of hairs. *P. retrocineta* Gunther, 1939

Not as above, coxae III with only one ciliated seta.

3. No distinct pitted non-striated area posteriorly on dorsum. Dorsal setae 2, 14, 14, 10, 8, 8, 6, 6, 2, 2. *P. megapodius* Gunther, 1939

Dorsum posteriorly with a distinct pitted but non-striated area, on which the hairs arise from tubercles. Dorsal setae 2, 16, 8 (10), 12 (10), 10 (8), 8 (10), 12, 6, 6, 6, 4. *P. yeomansi* Gunther, 1939

Genus SCHÖNGASTIA Oud. 1910, Ewing 1929

No species of this genus in the restricted sense of Ewing have as yet been recorded from Australia, but the following three species are known from New Guinea.

KEY TO THE NEW GUINEA SPECIES OF SCHÖNGASTIA

1. Dorsal body setae more than 50. Dorsal body setae 40, arranged 2, 12 (8), (4) (6), 4, 2, 2; 50  $\mu$  long. *S. jamesi* Gunther, 1939

2. Dorsal body setae 52, arranged 2, 10, 10, 10, 10, 8 (10), 2 (10). Palpal claw bifurcate. *S. van der sandei* Oudemans, 1905

Dorsal body setae 64, arranged 2, 10, 8, 10, 8 (10), 10 (8), 8, 8; 40  $\mu$  long. (According to Gunther the eighth row is frequently ventral.) Palpal claw bifurcate.

*S. blestowci* Gunther, 1935